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## Introduction of Fisheries Co-management in Oman, Why and Why not?

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### Abstract

The fishery sector in Oman is one of the most important industries, beside the other sectors in terms of the contribution to the gross domestic product and food security in addition to the provision of employment opportunities. Albatinah state had several problems like: conflict among fishermen, unrestricted access of new technologies to the sector, insufficient management of the fisheries resource, uncontrolled fish export which led to over fishing in some coastal areas of Oman like in Albatinah state. A survey was conducted in the northern part of this state using structured questionnaire, in order to identify the possibility of introducing co-management in this place. There were relevant findings about the above issue some of them came under the responsibilities of the government such as the legal aspect, establishments of infrastructures and facilities needed for co-management. On the other hand, some elements of these findings fall under the responsibilities of fishermen like: the homogeneity in socio-economic activities, their goals and objectives in life. The formation of unions like fishermen association and categorization of fishermen by socio-economic activities will enhance the introduction of co-management.

**Key words:** Fisheries management; Sea code (*Senat Al-Bahar*); Co-management; Overfishing.

### 1. Introduction

Many management systems around the world suffered from failure to achieve success in their works. Alhabsi & Nik Mustapha (2011) argued, most often sustainability is mentioned beside the

management concept, because the management is a tool to achieve good sustainability for fisheries. Fisheries management like other systems, had problems in dealing with the resources and the users in order to insure sustainability of the stocks. There are some strategies that have been tried for the management of the fisheries such as: top-down or central management and community based management. However, there is another strategy of the management called co-management, a partnership arrangement in which government agencies, the community of local resource users (fishermen), non-governmental organisations, and other stakeholders (fish traders, boat owners, businesspeople and other parties) share the responsibility and authority for the management of a fishery resource (Symes, & Phillipson, 1999). Co-management is new in fisheries as a concept (30-40 years), while in practice it has existed in fisheries management for decades and in some fishing industries for centuries like in Japan (Aloufi & Younis undated). This paper investigates the essential elements necessary in the implementation of fisheries co-management in Oman. Also, it aims to define the important facilities that are required for co-management implementation.

## **2. Methodology**

A survey based on probability sampling was employed in this study (Ardilly & Tille 2005). Before the actual survey was conducted the questionnaire was reviewed and tested several times. Data collection was carried out using questionnaire that was designed according to the principles described in Mutchnick & Berg (1996) together with semi-structured interview. Mail questionnaire (e-mail) survey was also used in order to target professionals who are familiar with the fisheries management in Oman. Those respondents are not easily accessible, either because they are residing outside the country to complete their studies or they are working in other countries. Responses to each question were processed and analyzed using SPSS. The survey is expected to represent the Albatinah region consisting of eight cities Barka, Almusanaa, Alsuaqi, Alkhaborah, Saham, Sohar, Liwa and Shinas. The actual survey was focused on three cities which are Sohar, Liwa and Shinas due to: i) The coastal ground in this area is mostly sandy and there are a lot of artificial reef locations, about 9181 positions distributed in this state (MOFW, 2008). ii) Albatinah region can be considered as the largest area in terms of fishermen number which is recorded about 11,205 fishermen out of 34757 total of fishermen in Oman (MOFW, 2007) representing 32.42%. iii) Many conflicts among fishermen occurred in this state because of the large number of fishermen who fishing in the same area and the limitation of fishing grounds. Also, iv) there is conflict of using fishing gears because there are many different types of them like beach seine, gill nets, all different lines and traps. These sample areas are located in the northern part of Albatinah state (Figure 1). Respondents included in this study were selected by a simple random sampling technique (Rao 2000).

During sampling, 376 samples were chosen randomly out of the total population (4,339) based on the random sampling table. Table 1 shows the number and percentage of fishermen sampled in this study. In addition, 60 samples of non fishermen have also been chosen from the fisheries managers in the study area. These special samples include marine researchers, teachers, environmentalists, academicians and scientists.

## **3. Fisheries Co-management in Oman**

Since 1969s, the government has control over the management of the fisheries sector for a long time without sharing with any other parties like fishermen or private sector. During late 1990s, the problem of the fishery continues to worsen and alternative methods of resource use and management were explored. Since 1997, there were 25 local management institutions established in all coastal cities in Oman with support from the government. Co-management was implemented to promote the tradition of *Senate Al-Bahar* in fisheries management. In all coastal states of Oman, fishermen are bound by the *Senat Al-Bahar* literally meant the “sea code”. *Senat Al-Bahar*, which as an institution, normally chaired by an experienced fisherman who is well respected within the community, addresses technological externalities and assignment of tasks as

well as, in some cases, management of stocks by restricting harvests. Although the institution does not have a system of monitoring in place, fishermen themselves enforce some of the rules propounded. In addition, moral norms play a key role in the success of the *Senat*. However, the traditions of the *Senat Al-Bahar* appear unable to withstand the current changes in the fishery, even though some of its rules are adhered to, and even supported by, the national legal framework (Al-Oufi *et al.*, 2000). These committees are responsible to monitor compliance, review fisheries regulations, resolve conflicts and work toward the needed fishery management decisions. Generally, the government has the authority for the final decisions, but consults with *Senate* committees.

The committee in each coastal town consists of members as follows: the Chairman who is represented by *Wali* (local governor) and Members from *Shura* council member (1 member), fishermen's representative (for every 500 fishermen there will be 1 representative), the Ministry of Fisheries Wealth representative (1 member), he is usually the manager of Fisheries Department in the coastal city. These local committees meet 4 times a year. The committees faced many challenges and little progress has been achieved in the way coastal fisheries are managed because of many reasons that relate to the government and to fishermen themselves. Also, the time frame for the institutions to evolve is from 5 to 10 years and this is too early to make a decision. On the other hand, local management committees are facing some difficulties because: these committees are chaired by a *Wali* (governor) who is, in most cases, has no interest in fisheries, members are selected by local political elites, fishermen representation is limited, the lack of power of members of the committee, meetings of these committees are held irregularly, and finally, some of them are not functioning in good manner which effect its gained results.

#### 4. Difficulties of Fisheries Management in Oman

Oman like other countries around the world had a lot of difficulties in managing the fisheries zones and resources due to the long of coastal line that is extend to 3,165 km, wide variety of resources and different tribal groups. The fishing system in Oman generally and specially in Albatinah region is represented by groups of fishermen living in small villages close to the coast, using different fishing gears (nets, lines and traps). This situation usually causes conflicts and inter-group competition between fishermen who are using different fishing gears. For example, conflict occurs between fishermen who are using gill nets and traps from one group with fishermen who own artificial reefs constructions from another group. Recent improvements in technology with unlimited entry and an unrestricted quota on harvest are other problems facing the management. Also, administratively and biologically it would be very impractical to allocate and delimit the fishing grounds because coastal grounds are difficult to distinguish and identify. In addition, the consumption and demand for re-export of Omani fish from the surrounding countries of United Arab Emirates, Kingdom of Saudi Arabia, Qatar and Kuwait, grow tremendously, putting more pressure on fishermen to catch more. Also, use of destructive gears and methods like beach seining, boat seining, monofilaments nets and undersides monofilament nets are invented and the use of illegal fishing methods including even lethal means that are prohibited by law. As a result, these destructive fishing activities have led to non sustainable fishing practices.

#### 5. Why Co-management is needed?

There is still question remaining: empirically, does fishery co-management positively affect the resource stocks and economic profits to fishermen? Do results vary depending on the self-management practices adopted by the fishery co-management regime? The importance of realising better fishery co-management is that, it is widely implemented and provided solution for many developing countries where the government is incapable of implementing centralised regulation. In addition the market infrastructures are too underdeveloped to adopt market-based

solutions such as tradable quotas (Wilson *et al*, 2003). However, Carlsson & Berkes (2005) argued and asked the question, what is co-management good for? They asserted that co-management is useful for allocating tasks, exchanging resources, linking different types and levels of organisation, reducing transaction costs, sharing risks, and resolving conflict and sharing power.

On the other hand, there are many elements attributing to co-management success such as, (i) Establishment of local management structure, the committee that is democratically elected body representative of fishermen and the authority to engage national government. (ii) Providing training for all parties involved in co-management in resource sustainability, on conflict resolution. This training includes exchange visits between fishermen communities, training community members as trainers and the children of fishermen as target groups for future development. (iii) Inviting local people for a joint decision-making. iv) Direct involvement of fishermen in research to determine quotas and evaluate harvesting method, and community monitoring programs. (v) Sharing of information on research results, from government and private sectors and gaining insights into indigenous knowledge. (vi) Restoration of legal access to resources and vii) Trust building activities (McClanahan & Castilla 2007). In the same contrast, David *et al*, (2005) stated that four important elements are required for the successful co-management. First is the enabling policy and legal framework. Second is empowerment of communities. Third is the effective linkages and institutions and fourth is an adequate fishery resource.

## 6. Results and Discussions

The respondents have been asked two major questions about co-management. First, what are the elements important for implementing successful co-management in Oman? Second, what are the facilities required for implementing good co-management?

In the interviews conducted with target groups, all respondents expressed their concerns regarding the factors that will help in implementing co-management and the required facilities for good co-management in Oman. The issues and concerns of the targeted groups can be categorized into five distinctive classes as follows:

- A. Legislations and enforcement which includes the followings specific issues:
  - i. Rules amendment (legislative frame work)
  - ii. Fishing zones
  - iii. Enforcement and extension and training
  - iv. Justice and fairness
- B. Facilities of infrastructure and investment: which include the following specific issues:
  - i. Establishments of more Infrastructure such as ports, fish markets, fish factories and ice factories
  - ii. Development of the artisinal and coastal fleets
- C. Institutional arrangements which include the followings specific issues:
  - i. Coordination among different government authorities and between fishermen and workers in related professions.
  - ii. Banking services like loans for beneficiaries of resource users
  - iii. Improvement of the Ministry of Fisheries Wealth organizational structure
  - iv. Cooperation among fishing society's members
  - v. Establishment of cooperative groups, societies and associations under the umbrella of Union of its own.

D. Economic and financial issues which includes the followings specific issues:

- Subsidies
- Technical support

E. Extension and education, training and information which include the following specific issues:

- Public awareness of the importance of co-management system
- Scientific research and data collection
- Assistance from international organisations
- Training programs for the fishermen and government staff.
- Utilising the local knowledge

The above issues can be divided two parts according to their responsibilities. The first part comes under the responsibility of government while the second part is the responsibility of both government and fishermen. More specifically, articles A, B and D are the responsibility of government, while articles C and E are the responsibility of both government and fishermen.

A study conducted by Edwards & Al-Mukhini, (2004) in Sur area in Alsharqiah state on the east of Oman, concluded about the same findings of classes as above. They added another element which is the health and safety. This issue is concerned about the fish quality, fish handling, health certificates, disasters and rescue.

Other findings refer to the final results of project called 'Development of Fishermen's Societies' (in Arabic (unpublished)). This project was carried out by the Department of Fisheries Extension and Local Committees in the Ministry of Fisheries Wealth for two years during 27/5/2007 to 26/5/2009. The author was one of the principal investigators in this project. The results highlighted four main elements to develop the communities of fishermen:

(i). Production which includes:

- a. Fish stocks
- b. Infrastructure contents
- c. Number of vessels and crew

(ii). Marketing which includes:

- a. Current and targeted production
- b. Demand of fish
- c. Fish transport and handling
- d. Fish price and fishermen income
- e. Fish price for consumers

(iii). Social which include:

- a. Provide equipment for fishermen close to where they live
- b. Sell the production in reasonable price
- c. Legislative framework
- d. Training on new techniques
- e. Provide all services on the coastal area

(iv). Financial elements.

Interviews with the target groups disclosed that there is a communication gap and lost of trust among the government and resource users. The real situation is that after more than thirty-nine

years the government controlled the fisheries management the sector is still facing many difficulties. The government does not involve the community in the management of the fishery, nor consider the local traditional institutional arrangements in the current management rules and legislations. In the same regard, contact across the stakeholder groups seems to be very weak or absent. It seems that each group has its own different concerns. Moreover, similarly, resource users react according to each individual's benefit and not for the sake of the group or the community.

## 7. Conclusion and Recommendations

Based on observation during the survey, resource users lack confidence in the government's rules and regulations, as well as in their own community leaders. This feeling exists because they have been excluded from decision-making and their views on the development and on the enactment of new laws were neglected.

For establishing successful fisheries co-management in Oman, the main parties in the fisheries industry must take over their responsibilities towards supporting this end. Each of the government and fishermen parties has their own duties in order to achieve this goal. Thus the recommendations will be divided into two parts: recommendations for government and for fishermen.

*First*, the recommendations for government are as follow: due to over fishing has been observed in some states in Oman, limits for effort and technology would avoid the negative side effects of uncontrolled competitive interactions between fishermen that tend to degrade both the ecological and the economic system. Also, it must set a mechanism for setting catch targets and distributing actual catch to organise the fishing structure.

Government is required to set legislative framework that run and organise co-management. National fisheries legislation with strong political commitment and support by the government and private authorities must be reviewed. In addition, there must be sufficient and clear design, implementation, and enforcement of these allocation mechanisms. Also, setting of exclusive use rights to fishermen is essential element in the co-management process.

Address possible alternatives of fisheries management, for example: involve the fishermen in the management of the sector through well organised institutions. Also, provide policy initiatives which help organise a process that balances interests of individual fishermen and supports negotiation of quotas within sustainability limits. Involvement of key stakeholders is as important as incorporating the best available scientific information about the complex interactions and the data that feed into models. Also, development of adaptive co-management framework is one of the main points in the management.

In order for new co-management system to work, government must rebuild confidence and trust with all parties and reestablishment and divides power and responsibilities among them. Devolve extension and enforcement functions from the Department of Fisheries to the district level are another important element could assess the co-management. Also, involve the resource users in a monitoring process to provide the users with hands-on experience. The authority should enhance understanding of resource use on the impact of different harvesting regimes (Edwards & Al-Mukhni, 2004).

Another important issue required from government is the need to educate local communities on the effects of marine resources destruction and the benefit from well managed marine resources. Once aware of such benefits, communities may opt to adopt conservation methods and to ensure that these methods are adopted by other communities as well.

The Government has to involve local communities in research, education, and training programs. Local people are integrated into the management system and their indigenous knowledge of fishes and other marine resources is utilised in designing management. On the other hand, there is need for further validation of (*senat albahar* -sea cod) in a broader range of circumstances and



environments. This could potentially contribute to the need to develop, design and package information, education and communication support materials and approaches for fisheries conflict management. Also, there is need to institutionalise multi-stakeholder participation in fisheries management. This could be done by organising stakeholder councils and affiliating them with government fishery agencies at various levels.

The government would also have specific responsibilities, such as the provision of infrastructure, technical support and research, training and extension. It must be willing to allocate sufficient resources for co-management efforts and instigate necessary administrative procedures to support local level initiatives. It needs to harmonise fisheries policies and legislation with other natural resource policies that focus on community participation.

*Second*, the recommendations for government are as follows: the local community which includes all resource-user groups would have specific responsibilities that it must accomplish. These responsibilities might include compliance with rules and regulations, effective participation in the decision making process and enforcement, and the provision of essential information about the fisheries through participants' knowledge and experience. Fishermen are also required for the existence of strong and homogeneous communities, stable cultural and social conditions, an established social structure with a recognised authority and enforcement provision. This can be formed in the establishment like groups or unions to strengthen their institutional, administrative and financial positions.

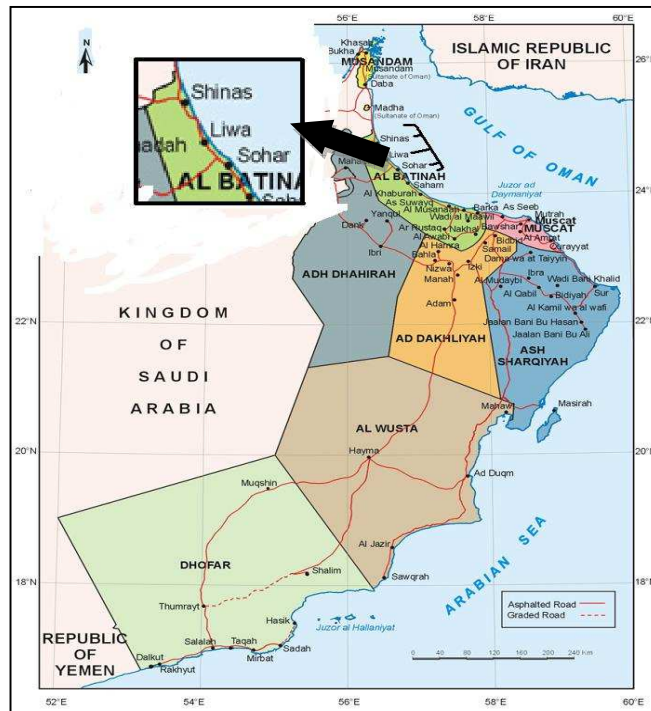
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**Figure.1: Study Area**

Source: [www.nsaom.org.om/english/omanadmin.htm](http://www.nsaom.org.om/english/omanadmin.htm)

**Table 1: Number and percentage of fishermen sampled according to Sample Area**

Sample Area	Total Number of fishermen	Samples number and percentage
		(%)
<b>Sohar</b>	1879	92 (4.8)
<b>Liwa</b>	473	113 (24)
<b>Shinas</b>	1987	111 (6)
<b>Total</b>	4339	316 (7.3)

Note: Figures in brackets are in percentage



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